

## CLAIM AMENDMENTS

1           1. (currently amended) A chemical sensor having  
2     comprising:  
3         \_\_\_\_\_ a substrate;  
4         \_\_\_\_\_ a first metallization plane ~~arranged~~ on ~~[[a]]~~ the  
5     substrate; ~~(1) and in which~~  
6             an electrode structure ~~(IDT)~~ is formed in the first  
7     metallization plane,  
8             a passivation layer ~~[[6]]~~ applied to the first  
9     metallization plane and ~~structured~~ formed with contact holes,  
10    ~~[[and]]~~  
11            a chemical-sensitive ceramic layer ~~[[9]]~~ on the  
12    passivation layer ~~[[6]]~~ and in the contact holes and capable of  
13    changing electrical properties when contacted by predetermined  
14    chemicals; and ~~(7), characterized in that~~  
15            a bond-promoting layer ~~(8) is provided which is~~  
16    configured as a second metallization plane and ~~is located~~ between  
17    the passivation layer ~~[[6]]~~ and the ceramic layer ~~[[9]]~~.

1           2. (currently amended) The chemical sensor according to  
2    claim 1 ~~characterized in that~~ wherein the second metallization  
3    plane is so applied that it comes to lie in the contact holes  
4    ~~[[7]]~~ upon the first metallization plane.

1           3. (currently amended) The chemical sensor according to  
2 claim 1, ~~characterized in that a~~ further comprising  
3 another passivation layer ~~(10)~~ ~~is located~~ between the  
4 bond-promoting layer 8 and the ceramic layer ~~[(9)]~~ and so  
5 structured that the ~~[[body]]~~ bond-promoting layer ~~[(8)]~~ is  
6 partially passivated.

1           4. (currently amended) The chemical sensor according to  
2 claim 1 ~~characterized in that~~ wherein two coplanar electrodes are  
3 formed in the electrode structure ~~[(IDT)]~~ of the first  
4 metallization plane ~~, two coplanar electrodes (IDT1, IDT2) are~~  
5 formed by structuring and the second metallization plane does not  
6 lie at a defined electrical potential.

1           5. (currently amended) The chemical sensor according to  
2 claim 1 ~~characterized in that~~ wherein the electrode structure  
3 ~~[(IDT )]~~ of the first metallization plane forms a first electrode  
4 ~~[(IDT1)]~~ and the second metallization plane is configured as a  
5 second electrode ~~[(IDT2)]~~ and lies at a defined electrical  
6 potential so that the sensitive ceramic layer ~~[(9)]~~ is provided  
7 with a vertical electrode.

1           6. (currently amended) The chemical sensor according to  
2 claim 5 ~~1 characterized in that~~ wherein the first and second  
3 electrodes ~~[(IDT 1, IDT 2)]~~ are configured as interdigitating  
4 electrodes.

1           7. (currently amended) The chemical sensor according to  
2 claim 1 ~~characterized in that~~ wherein a heating structure and a  
3 temperature-measuring structure are formed in the first  
4 metallization plane ~~[[,]]~~ in addition to the electrode structure  
5 ~~(IDT) a heating structure (4) and a temperature measuring structure~~  
6 ~~(5) are formed.~~

1           8. (currently amended) The chemical sensor according to  
2 claim 7 ~~1 characterized in that~~ wherein the structures ~~[(4, 5,~~  
3 ~~IDT)]~~ of the first metallization plane are formed on the front  
4 side of an Si-substrate ~~[(1)]~~ which has a membrane ~~[(3)]~~.

1           9. (currently amended) The chemical sensor according to  
2 claim 1 ~~characterized in that~~ wherein the material for the second  
3 metallization plane is Au, Cr/Au, Pt, Pd, W or Sn.

1           10. (currently amended) The chemical sensor according  
2 to claim 1 ~~characterized in that~~ wherein the application of the  
3 sensitive ceramic layer is effected by silk screening, dispenser  
4 application or an ink jet process.